

IN THE CLAIMS:

1. (Currently Amended) A wireless access method in which there are installed a plurality of access point stations deploying a wireless service area and forming a communication link with a mobile radio terminal which has entered the service area, and a communication link is formed between the plurality of access point stations to perform communication, the method comprising:

performing point-to-multipoint type communication with the mobile radio terminal by providing ~~[[an]]~~ a self-heterodyne RF transceiver in each of the plurality of access point stations;

performing point-to-point type communication with other access point stations by providing one or more another self-heterodyne RF transceivers in each of the plurality of access point stations, said plurality of access point stations comprising a control access point station, a first repeater access point station and a second repeater access point station, signal processing at each access point being performed in an IF frequency band obtained by performing down-converting from an RF frequency band, said control access point station performing signal modulation/demodulation or access control, said control access point station broadcasting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access point and simultaneously relaying/transmitting a second signal in a second RF frequency band to said first repeater access point station, said second repeater access point station converting and dividing a reception signal in a RF frequency band into two signals in an IF frequency band and converting said two signals into a third signal in

a third RF frequency band and a fourth signal in a fourth RF frequency band ~~into a first signal~~
~~and a second signal~~ when said second repeater access point station receives said reception signal
from one of said first repeater access point station and said control access point station, said
first, second, third and fourth RF frequency bands being different from each other, said second
25 repeater access point station broadcasting and delivering said ~~[[first]]~~ third signal to each mobile
radio terminal located within a coverage area of said second repeater access point and
simultaneously relaying/transmitting said ~~second~~ fourth signal to another one of said access
point stations based on a non-reproduction scheme, said second repeater access point station
receiving a mobile radio terminal signal from one of said mobile radio terminals located within
30 said coverage area of said second repeater access point station, said second repeater access
point station relaying/transmitting said mobile radio terminal signal to one of said access point
stations based on a non-reproduction scheme, ~~wherein signal processing at each access point~~
~~station is performed in an IF frequency band obtained by performing down-converting from an~~
~~RF frequency band.~~

2. (Canceled)

3. (Previously Presented) The wireless access method according to claim 1, wherein:
to a radio signal transmitted from the control access point station to another access
point station, there is attached destination information for allowing a destination access point
station to perform identification; and

5 each repeater access point station identifies destination information of a received signal, relaying/transmitting the signal to another access point station based on a non-reproduction scheme when the signal is not destined for the own station, broadcasting the signal to the coverage area of the own station to deliver the signal to all mobile radio terminals when the signal is destined for the own station.

4. (Canceled)

5. (Currently Amended) The wireless access method according to claim 1, wherein the self-heterodyne RF transceiver included in the access point station is based on a millimeter-wave self-heterodyne scheme.

6. (Currently Amended) A wireless access system in which there are installed a plurality of access point stations deploying a wireless service area and forming a communication link with a mobile radio terminal which has entered the service area, and a communication link is formed between the plurality of access point stations, the system comprising:

5 a self-heterodyne[[an]] RF transceiver to form point-to-multipoint type communication link with the mobile radio terminal, said RF transceiver being located in each of said plurality of access point stations; and

 one or more another self-heterodyne RF transceivers to form a point-to-point type communication link with another access point station, said plurality of access point stations

10 comprising a control access station point, a first repeater access point station and a second
repeater access point station, wherein signal processing at each access point station is
performed in an IF frequency band obtained by performing down-converting from an RF
frequency band ~~said first repeater access point station receiving a signal from one of said second~~
~~repeater access point station and said control station,~~ said control access station point
15 transmitting and delivering a first signal in a first RF frequency band to each mobile radio
terminal located within a coverage area of said control access station point and simultaneously
transmitting a second signal in a second RF frequency band to said first repeater access point
station, said second repeater access point station converting and dividing a reception signal in
a RF frequency band into two signals in an IF frequency band and converting said two signals
20 into a third signal in a third RF frequency band and a fourth signal in a fourth RF frequency
band when said second repeater access point station receives said reception signal from one of
said first repeater access point station and said control access point station, each of said RF
frequency bands being different from another one of said RF frequency bands, said ~~[[first]]~~
~~second~~ repeater access point station broadcasting and delivering said third ~~dividing said signal~~
25 ~~into a first signal and a second signal,~~ ~~said first repeater access point station delivering said first~~
~~signal~~ to each mobile radio terminal located within a coverage area of said first repeater access
point station and simultaneously transmitting said ~~second~~ fourth signal to another one of said
access point stations based on a non-reproduction scheme, said ~~[[first]]~~ second repeater access
point station receiving a mobile radio terminal signal from one of said mobile ~~radio~~ radio
30 terminals located within said coverage area of said first repeater access point station, said

[[first]] second repeater access point station transmitting said mobile radio terminal signal to another one of said access point stations.

7. (Original) The wireless access system according to claim 6, wherein the plurality of access point stations are constructed in cascade arrangement or two-dimensionally across a wide area, whereby a wireless service zone is deployed on a planar surface.

8. (Canceled)

9. (Previously Presented) The wireless access system according to claim 6, wherein:
to a radio signal transmitted from the control access point station to another access point station, there is attached destination information for allowing a destination access point station to perform identification; and

5 each repeater access point station identifies destination information of a received signal, relaying/transmitting the signal to another access point station based on a non-reproduction scheme when the signal is not destined for the own station, broadcasting the signal to the coverage area of the own station to deliver the signal to all mobile radio terminals when the signal is destined for the own station.

10. (Canceled)

11. (Currently Amended) The wireless access system according to claim 6, wherein the self-heterodyne RF transceiver included in the access point station is based on a millimeter-wave self-heterodyne scheme.

12. (Currently Amended) A wireless access method, comprising:

providing a plurality of access point stations, each access point station transmitting a wireless service to define a wireless service area;

providing a first self-heterodyne RF transceiver in each of said plurality of access point stations;

performing point-to-multipoint type communication with a mobile radio terminal located in one or more of said wireless service areas with said first self-heterodyne RF transceiver;

providing a second self-heterodyne RF transceiver in each of said plurality of access point stations;

performing point-to-point type communication with one of said access point stations and another of said access point stations via said second self-heterodyne RF transceivers transreceiver, said plurality of access point stations comprising a control access point station, a first repeater access point station and a second repeater access point station, said control access point station performing signal modulation/demodulation or access control, wherein signal processing at each access point station is performed in an IF frequency band obtained by performing down-converting from an RF frequency band, said control access point station transmitting and delivering a first signal in a first RF frequency band to each mobile radio

terminal located within a coverage area of said control access point and simultaneously
transmitting a second signal in a second RF frequency band to said first repeater access point
20 station, said second repeater access point station receiving a reception signal in a RF frequency
from one of said first repeater access point station and said control access point station, said
second repeater access point station converting and dividing [[a]] said reception signal into a
first signal and a second signal in an IF frequency band when said second repeater access point
station receives a signal from one of said first repeater access point station and said control
25 access point station, said second repeater access point station converting said first signal into
a third signal in a third RF frequency band and said second repeater access point station
converting said second signal into a fourth signal in a fourth RF frequency band, each RF
frequency band being different from another said RF frequency band, said second repeater
access point station delivering said ~~[[first]]~~ third signal to one or more mobile radio terminals
30 located within said wireless service area of said second repeater access point and simultaneously
delivering said ~~second~~ fourth signal to another one of said access point stations, said second
repeater access point station receiving a mobile radio terminal signal from one of said mobile
radio terminals located within said wireless service area of said second repeater access point
station, said second repeater access point station delivering said mobile radio terminal signal to
35 another one access point stations, ~~wherein signal processing at each access point station is~~
~~performed in an IF frequency band obtained by performing down-converting from an RF~~
~~frequency band.~~

13. (Previously Presented) A wireless access method according to claim 12, wherein:

to a radio signal transmitted from the control access point station to another access
40 point station, there is attached destination information for allowing a destination access point
station to perform identification; and

each repeater access point station identifies destination information of a received signal,
relaying/transmitting the signal to another access point station based on a non-reproduction
scheme when the signal is not destined for the own station, broadcasting the signal to the
45 coverage area of the own station to deliver the signal to all mobile radio terminals when the
signal is destined for the own station.

14. (Currently Amended) A wireless access method according to claim 12, wherein the
self-heterodyne RF transceiver included in the access point station is based on a millimeter-wave
self-heterodyne scheme.